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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/776,240	02/12/2004	Ryuji Mano	67161-141	2628

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EXAMINER	
VO, HUYEN X	

ART UNIT	PAPER NUMBER
2626	

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05/03/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/776,240

Applicant(s)

MANO, RYUJI

Examiner

Huyen X. Vo

Art Unit

2626

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 1 sheet.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless – (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Jiang et al. (US 6542866).

3. Regarding claim 1, Jiang et al. disclose a speech recognition apparatus, comprising:

a feature extracting portion extracting a feature parameter by sliding, at least with different time width, a plurality of frames corresponding to time windows each having a prescribed length of time, over an input speech signal (*feature extractor modules 105-109 in figure 2, also referring to col. 5, lines 6-67*);

a storing portion storing standard pattern data in correspondence with phoneme patterns, respectively, of said input speech (*acoustic models 112 in figure 2*); and

a recognizing portion collating said feature parameter extracted by said feature extracting pattern with said standard pattern data to recognize a corresponding phoneme and to output a recognition result (*the operation of figure 2 or referring to col. 5, line 6 to col. 6, line 67*).

4. Regarding claim 2, Jiang et al. further disclose the speech recognition apparatus according to claim 1, wherein said feature extracting portion successively increases time width for sliding said frame from a beginning part to an ending part of said input speech signal (*referring to figure 3*); and said storing portion stores said standard pattern data corresponding to a pattern of time width with which said feature extracting portion slides said frame (*acoustic models 112 in figure 2*).

5. Regarding claim 3, Jiang et al. further disclose the speech recognition apparatus according to claim 1, wherein said feature extracting portion includes a first fixed-frame-interval extraction processing portion extracting said feature parameter while sliding said frame with a first fixed time width (*referring to figure 3 or col. 5, lines 23-67*), and a second fixed-frame-interval extraction processing portion extracting said feature parameter while sliding said frame with a second fixed time width shorter than said first fixed time width (*referring to figure 3 or col. 5, lines 23-67*); and said standard pattern data include first standard pattern data corresponding to a first pattern of time width with which said first fixed-frame-interval extraction processing portion slides said frame, and a second standard pattern data corresponding to a second pattern of time width with which said second fixed-frame-interval extraction processing portion slides said frame (*col. 6, lines 4-56 or referring to acoustic models 112 in figure 2*).

6. Regarding claim 5, Jiang et al. further disclose the speech recognition apparatus according to claim 1, wherein said feature extracting portion includes a first fixed-frame-interval extraction processing portion extracting said feature parameter while sliding said frame with a first fixed time width (*referring to figure 3 or col. 5, lines 23-67*), and a second fixed-frame-interval extraction processing portion extracting said feature parameter while sliding said frame with a second fixed time width shorter than said first fixed time width (*referring to figure 3 or col. 5, lines 23-67*); and

said standard pattern data include first standard pattern data corresponding to a first pattern of time width with which said first fixed-frame-interval extraction processing portion slides said frame, and a second standard pattern data corresponding to a second pattern of time width with which said second fixed-frame-interval extraction processing portion slides said frame (*col. 6, lines 4-56 or referring to acoustic models 112 in figure 2*);

said speech recognition apparatus further comprising an input selecting portion provided between said input speech signal and said feature extracting portion, for switching destination of said input speech signal from said first fixed-frame-interval extraction processing portion to said second fixed-frame-interval extraction processing portion in accordance with a result of collation by said recognizing portion based on said feature parameter extracted by said first fixed-frame-interval extraction processing portion (*elements 106 and 114 in figure 2 and/or referring to col. 6, lines 25-67, and also referring to col. 8, lines 6-38, equivalent to switching*).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jiang et al. (US 6542866).

9. Regarding claims 4 and 8, Jiang et al. further disclose the speech recognition apparatus according to claim 1, wherein said feature extracting portion includes a fixed-frame-interval extraction processing portion extracting said feature parameter while sliding said frame with a fixed time width (*referring to figure 3 or col. 5, lines 23-67*), and a fixed-frame-interval extraction processing portion extracting said parameter while successively increasing time width for sliding said frame, from a beginning part to an ending part of said input speech (*referring to figure 3 or col. 5, lines 23-67*); and

said standard pattern data include first standard pattern data corresponding to a first pattern of time width with which said fixed-frame-interval extraction processing portion slides said frame, and a second standard pattern data corresponding to a second pattern of time width with which said variable-frame-interval extraction processing portion slides said frame (*col. 6, lines 4-56 or referring to acoustic models 112 in figure 2*);

said speech recognition apparatus further comprising an input selecting portion provided between said input speech signal and said feature extracting portion, for switching destination of said input speech signal from said fixed-frame-interval extraction processing portion to said variable-frame-interval extraction processing portion in accordance with a result of collation by said recognizing portion based on said feature parameter extracted by said first fixed-frame-interval extraction processing portion (*elements 106 and 114 in figure 2 and/or referring to col. 6, lines 25-67, and also referring to col. 8, lines 6-38, equivalent to switching*).

Jiang et al. fail to specifically disclose that the second feature extractor operates on variable-frame-interval rather than fixed-frame interval. However, fixed-frame interval and variable-frame interval are well known in signal processing art. It would have been obvious to one of ordinary skill in the art at the time of invention to employ a variable-frame-interval feature extractor in place of a second feature extractor as taught by Jiang et al. One advantage of processing signal in variable frame interval is to improve quality of processed signal.

10. Claims 6-7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jiang et al. (US 6542866) in view of Maylayath et al. (US 6957183).

11. Regarding claims 6 and 9, Jiang et al. fail to specifically disclose the speech recognition apparatus according to claims 5 and 8, respectively, wherein said first standard pattern data are related to time; said speech recognition apparatus further

comprising an interpolating portion generating said second standard pattern data by interpolation, based on said first standard pattern data. However, Malayath et al. teach said first standard pattern data are related to time; said speech recognition apparatus further comprising an interpolating portion generating said second standard pattern data by interpolation, based on said first standard pattern data (*abstract section, a first feature extractor extracting a first feature vector, which is then fed into a second feature extractor that extracts a second feature vector*).

Since Jiang et al. and Malayath et al. are analogous art because they are from the same field of endeavor, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Jiang et al. by incorporating the teaching of Malayath et al. in order to improve speech recognition accuracy.

12. Regarding claim 7, Jiang et al. further disclose the speech recognition apparatus according to claim 6, wherein said first standard pattern data and said second standard pattern data are related to time (*PLC, PLP, and MFCC feature vectors all include time dimension*), but fail to specifically disclose that at each time point, at which said second fixed-frame-interval extraction processing portion slides said frame, corresponds to any of time points at which said first fixed-frame-interval extraction processing portion slides said frame. However Malayath et al. teach at each time point, at which said second fixed-frame-interval extraction processing portion slides said frame, corresponds to any of time points at which said first fixed-frame-interval extraction processing portion slides said frame (*element 202 and 204 in figure 2, output spectral feature extractor 202 is*

applied to a secondary feature extractor 204, which extracts a second feature vector from the first feature vector).

Since Jiang et al. and Malayath et al. are analogous art because they are from the same field of endeavor, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Jiang et al. by incorporating the teaching of Malayath et al. in order to improve speech recognition accuracy.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huyen X. Vo whose telephone number is 571-272-7631. The examiner can normally be reached on M-F, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on 571-272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2626

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HXV

4/27/2007

A handwritten signature in black ink, consisting of a series of loops and a long horizontal stroke extending to the left.